Switching in modulated quantum oscillators beyond the rotating wave approximation. VITTORIO PEANO, Albert-Ludwigs University Freiburg, MICHAEL MARTHALER, Karlsruhe University, MARK DYKMAN, Michigan State University — Experiments with Josephson bifurcation amplifiers have reached the regime where the switching between different metastable states is governed by quantum fluctuations [1]. The existing theoretical analysis of the metastable decay relies on the rotating wave approximation (RWA) and gives an exponentially small switching rate [2]. Therefore if corrections to the RWA modify the switching rate, they can become substantial even where they are small. We incorporate them within a semiclassical perturbation theory in the Floquet basis. Our analytical results are corroborated by numerical calculations and suggest a switching mechanism that had been previously overlooked.


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